

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference K 2601 PCT	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/003169	International filing date (day/month/year) 25.03.2004	Priority date (day/month/year) 26.03.2003	
International Patent Classification (IPC) or national classification and IPC A61C13/00			
Applicant 3M ESPE AG et Al.			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 6 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 1 sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).			
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application			
Date of submission of the demand 22.10.2004	Date of completion of this report 01.07.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Chabus, H Telephone No. +31 70 340-2684		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003169

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-8 as originally filed

Claims, Numbers

2-18 as originally filed

1 received on 15.06.2005 with letter of 15.06.2005

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003169

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4, 5, 6
	No: Claims	1-3, 7-18
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:
 - D1: BE-A-1 011 205 (MATERIALISE NV) 1 June 1999 (1999-06-01)
 - D2: VAQUER C ET AL INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "MECHANICAL BEHAVIOUR AND OPTIMIZATION OF REMOVABLE PARTIAL DENTURES BY THE FINITE ELEMENT METHOD" 29 October 1992 (1992-10-29), PROCEEDINGS OF THE ANNUAL INTERNATIONAL CONFERENCE OF THE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY. PARIS, OCT. 29 - NOV. 1, 1992, NEW YORK, IEEE, US, PAGE(S) 943-944 , XP000480695
 - D3: DATABASE COMPENDEX [Online] ENGINEERING INFORMATION, INC., NEW YORK, NY, US; 1997, HANSSON S: "Fixed partial bridge in the lower jaw supported by one implant and one tooth" XP002289990 Database accession no. EIX97303674750
2. The application does not meet the requirements of Article 6 PCT, because claim 1 is not clear.
 - 2.1 The expressions **dental prosthesis**, **prosthesis sections** and **connector section** in claim 1 are very broad and may relate to dental prostheses, bridges and even implants (see also description page 1 lines 9-27). Those expressions have been interpreted in the their broadest sense for the following.
 - 2.2 Claim 1 refers to a **stability parameter** and to a **stability criterion**. The list "such as circular cross section area, minimal cross section area, length of connector section, and/or minimal sectional modulus" tries to define the stability parameter, but does not add a meaningful limitation to the scope of claim 1. Those features are considered as optional (see PCT guidelines Part II Chapter 5, 5.40).
 - 2.3 Furthermore, it is no clear to which technical features of the prosthesis section and the connector section, the word **stable** is referring to.

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 12 14-18 is not new in the sense of Article 33(2) PCT.

3.1 The document D1 discloses (the references in parentheses applying to this document):

a process for processing of data regarding the three-dimensional shape of dental prosthesis (see page 1 paragraph 3), which has two prosthesis sections (12, 15) and a connector section (14), said connector section (14) being connected to the two prosthesis sections (12, 15) and less stable than the two prosthesis sections (12, 15) (it is considered that a connector section having a thin wall is less stable than two prosthesis sections having a thicker wall) (see page 19 paragraph 5 and figures 2-4).

Document D1 further implicitly discloses (see page 18 paragraph 3 and page 19 paragraph 6) the following method steps:

- determination of a stability parameter and a stability criterion for the connector section (the thickness of the tooth is considered as a stability parameter);
- calculation of the actual value for the stability parameter;
- check for the connector section as whether the actual value fulfills the stability criterion, and if not, that a warning signal is generated, wherein the determination of the stability criterion is dependent on
 - the configuration of the prosthesis; and/or
 - the cross-sectional profile of the connector section;
 - the type of the prosthesis sections adjoining the connector section.

Consequently, the subject-matter of **claim 1** is not new.

3.2 The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent **claims 14-18**, which therefore are also considered not new.

3.3 Document D1 discloses implicitly a computer including an Input device (keyboard), a central unit (processor) and an output device (display). Therefore, the subject-matter of **claim 12** is not new.

4. Dependent claims 2-11, 13 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in

respect of novelty and/or inventive step.

- 4.1 Document D1 discloses a stability criterion including a limit to which the actual value is compared (**claim 2**), said stability criterion being a lower limit of the minimal cross-sectional area of the connector section (**claim 3**) (see page 18 paragraph 3 and page 19 paragraph 6). Furthermore, document D1 discloses the step of calculating the actual value starting conforming to given specification (**claim 7**) or to a given time plan (**claim 8**) (see page 19 paragraphs 1-6). In D1, the shape data can be modified and the calculation is started (**claim 9**), and the warning signal triggers a warning for the step that the change of the shape data which has lead to the non-fulfilment of the stability criterion, is reversed (**claim 10**) (see page 18 paragraph 3).
In D1, the process is performed by means of a computer program (**claim 11**) and involves an input device for changing the data and an output device for displaying the data (**claim 13**).
- 4.2 The length (**claim 4**) and the minimal section modulus (**claim 5**) of the connector section are considered as obvious alternatives as stability parameters for the connector section (see document D3).
- 4.3 The use of the finite elements method to determine the stability parameter (**claim 6**) is not considered as inventive as such a method is commonly used in the design of bridges (see document D2).